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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|-----------------------|---------------------|------------------|
| 10/661,652 | 09/12/2003 | Richard T. Knadle JR. | 022.0008 (1630) | 9349 |
| 29906 | 7590 | 10/18/2006 | EXAMINER | |
| INGRASSIA FISHER & LORENZ, P.C. 7150 E. CAMELBACK, STE. 325 SCOTTSDALE, AZ 85251 | | | DINH, TRINH VO | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2821 | |

DATE MAILED: 10/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/661,652

Applicant(s)

KNADLE ET AL.

Examiner

Trinh Vo Dinh

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-15, 17-41, 43 and 44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17-40, 43 and 44 is/are allowed.
- 6) ☒ Claim(s) 2-15 and 41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This is a response to amendment filed 08/31/2006. Claims 2-15, 17-41 and 43-44 are pending. The amended claims 41 and 2-15 necessitate a new ground of rejection as discussed below.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2-12 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lanzl et al (US 6,353,406 of record) in view of Huang (US 5,220,335 of record), and further in view of Weber (US 5,748,156).

Respecting claim 41, Lanzl discloses a processing module (2300) configured to operate as a handheld, portable device RFID interrogator (col. 1, lines 25-30, and col. 15, lines 19-25), a directional antenna (2312, 2314). Lanzl does not suggest the antenna being an antenna array having a driven element and a first parasitic element. Huang discloses an antenna array (10) having a driven element (12) and a first parasitic element (14) separated from said driven element, wherein at least one of said first parasitic element and said driven element have a width that is greater than about one-half a percent (0.5%) of an free-space wavelength of the directional antenna array (col. 4, lines 34-43). However, Lanzl and Huang fairly suggest a balun structure coupled to the parasitic element. Weber discloses a balun (col. 6 lines 7-15) coupled to a parasitic element (12b). It would have been obvious to one having ordinary skill in the art to

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provide Huang antenna array with a balun as taught by Weber in order to balance the antenna's signals.

With respect to claims 2-4, Huang discloses said width is greater than about four percent (4%) of said free-space wavelength of the directional antenna array (col. 4, lines 34-43).

With respect to claim 5, Huang discloses a second parasitic element (16) that is separated from said driven element (12), wherein said at least one of said first parasitic element, said driven element and said second parasitic element has said width that is greater than about one-half a percent (0.5%) of an free-space wavelength of the directional antenna array (col. 4, lines 34-43).

With respect to claim 6, Huang discloses a plurality of parasitic elements (16, 18) in addition to said first parasitic element (14).

With respect to claims 7-9, Huang discloses the first parasitic element (14) and a second parasitic element (16) being at least substantially in-plane elements (col. 3, lines 10-13), and the first parasitic element (14) being a reflector element and the second parasitic element (16) being a director element (col. 3, lines 10+).

With respect to claim 10 and 12, Huang and Lanzl disclose every feature of the claimed invention except the antenna elements being formed of a monolithic material as spring steel. However, selecting a known material on the basis of its suitability for the intended uses as a matter of obvious design choice. Therefore, choosing spring steel as a material for Huang' antenna elements has been deem obvious to one having skill in the art (referred to US 2003/0125725 which discloses an antenna being formed of spring steel in paragraph [0091]).

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With respect to claim 11, choosing resistivity for a material has been well known in the art to achieve a desired radiating parameters such as providing optimum absorption of the emitted radiation (for Applicant's information, the teaching is found in US Patent 5,493,704, col. 2, lines 37-46). Therefore, selecting the resistivity for monolithic material as being greater than about 0.2×10^{-6} ohms-meter would have been obvious to one having skill in the art.

3. Claim 13 remains rejected under 35 U.S.C. 103(a) as being unpatentable over Lanzl as modified by Huang and Weber, and further in view of Chen et al (USP 6,809,699 of record).

Lanzl as modified by Huang and Weber discloses substantially the claimed invention as noted above in claim 1. However, they fairly suggest a plurality of apertures in the driven element and the parasitic element. Chen discloses, in Fig. 3, the antenna element (20, 30) having a plurality of apertures (60, col. 48-56). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Huang's antenna elements with plurality of apertures as taught by Chen in order to reduce the electrical length of the antenna therefore improve the antenna's performances.

4. Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lanzl as modified by Huang and Weber, and further in view of MacDonald, Jr. et al (USP 6,061,036 of record).

Lanzl as modified by Huang and Weber disclose every feature of the claimed invention except at least a portion of the antenna elements being covered with an elastomer. MacDonald discloses a driven element (18) and parasitic elements (26) being covered with elastomer layers (abstract). It would have been obvious to one having ordinary skill in the art to cover Huang's antenna elements with elastomer dielectric layers as taught by MacDonald. Doing so would

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provide the antenna elements with highly flexural characteristic so that the antenna elements can be bent without permanent deformation (as disclosed by MacDonald, col. 1, lines 54-67).

Allowed Subjected Matter

5. Claims 17-40 and 43-44 are presently allowed.
6. The following is a statement of reasons for the indication of allowable subject matter:

The cited art of record fails to teach the balun structure comprising a dipole structure, a first feed point extending from said dipole structure, and a second feed point extending from said first parasitic element as defined in claims 17, 21 and 43.


Inquiry

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trinh Vo Dinh whose telephone number is (571) 272-1821. The examiner can normally be reached on Monday to Friday from 9:30AM to 6:00PM. The fax phone number for the organization where this application or proceeding is assigned is 571-273- 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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October 15, 2006


TRINH DINH
PRIMARY EXAMINER